

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A plasma processing method having a first and a second plasma processing step carried out in a single chamber, wherein deposits are substantially accumulated in the chamber during the first plasma processing step, the method comprising the step of:

dry cleaning an inside of the chamber by using a dummy substrate between the first and the second plasma processing step,

wherein the dry cleaning step is performed by supplying into the chamber a deposit removing gas for removing the deposits produced in the chamber during the first plasma processing step and a dummy substrate etching gas capable of etching the dummy substrate, and to stabilize an etching rate of the second plasma processing step carried out right after the dry cleaning step,

wherein the second plasma processing step includes a plasma etching performed without producing deposits in the chamber, and

wherein a first and a second CF-based gas are used in the first and the second plasma processing step, respectively, and a fluorine/chlorine (F/C) ratio of the first CF-based gas is smaller than that of the second CF-based gas.

Claim 2 (Original): The plasma processing method of claim 1, wherein the deposit removing gas is an oxygen gas, a nitrogen gas, a hydrogen gas, an ammonia gas or a combination thereof.

Claim 3 (Original): The plasma processing method of claim 1, wherein the dummy substrate etching gas is one of a CF-based gas, a CHF-based gas and a SF-based gas.

Claim 4 (Original): The plasma processing method of claim 1, wherein the deposit removing gas is an oxygen gas and the dummy substrate etching gas is CF_4 .

Claim 5 (Original): The plasma processing method of claim 1, wherein a surface of the dummy substrate is made of a material having silicon.

Claim 6 (Currently Amended): A plasma processing method comprising the sequential steps of:

performing a first plasma etching ~~on an object~~ in a chamber, during which deposits are produced and accumulated in the chamber;

dry cleaning an inside of the chamber by using a dummy substrate, ~~wherein the dry cleaning step is performed by supplying into the chamber a deposit removing gas for removing the deposits and a dummy substrate etching gas capable of etching the dummy substrate; and~~

performing a second plasma etching ~~on the object~~ without producing deposits in the chamber,

wherein the dry cleaning step is performed by supplying into the chamber a deposit removing gas for removing the deposits and a dummy substrate etching gas capable of etching the dummy substrate to stabilize an etching rate of the second plasma etching step carried out right after the dry cleaning step,

wherein a ratio of a flow rate of the dummy substrate etching gas to that of the deposit removing gas is not less than about 0.14% but not larger than about 7.1%, and

wherein a first and a second CF-based gas are used in the first and the second plasma etching, respectively, and a fluorine/chlorine (F/C) ratio of the first CF-based gas is smaller than that of the second CF-based gas.

Claim 7 (Previously Presented): The plasma processing method of claim 6, wherein a high frequency power applied to one of a top and a bottom electrode during the step of dry cleaning ranges from about 3.18 W/cm^2 to about 4.78 W/cm^2 .

Claim 8 (Original): The plasma processing method of claim 6, wherein the deposit removing gas is an oxygen gas, a nitrogen gas, a hydrogen gas, an ammonia gas or a combination thereof.

Claim 9 (Original): The plasma processing method of claim 6, wherein the dummy substrate etching gas is one of a CF-based gas, a CHF-based gas and a SF-based gas.

Claim 10 (Original): The plasma processing method of claim 6, wherein the deposit removing gas is an oxygen gas and the dummy substrate etching gas is CF_4 .

Claim 11 (Original): The plasma processing method of claim 6, wherein a surface of the dummy substrate is made of a material having silicon.

Claim 12 (Canceled).

Claim 13 (Currently Amended): An apparatus for performing a plasma processing on an object to be processed, comprising:

a chamber in which a first and a second plasma process are carried out, deposits being substantially accumulated in the chamber during the first plasma process and substantially no deposits being accumulated in the chamber during the second plasma process, wherein the second plasma process includes a plasma etching process; and

a gas supply system for supplying into the chamber a deposit removing gas for removing deposits produced in the chamber and a dummy substrate etching gas capable of plasma-etching a dummy substrate during a dry cleaning process carried out by using the dummy substrate after the first plasma process and prior to the second plasma process to stabilize an etching rate of the second plasma process carried out right after the dry cleaning step,

wherein a first and a second CF-based gas are used in the first and the second plasma process, respectively, and a fluorine/chlorine (F/C) ratio of the first CF-based gas is smaller than that of the second CF-based gas.

Claim 14 (Original): The apparatus of claim 13, wherein the deposit removing gas is an oxygen gas, a nitrogen gas, a hydrogen gas, an ammonia gas or a combination thereof.

Claim 15 (Original): The apparatus of claim 13, wherein the dummy substrate etching gas is one of a CF-based gas, a CHF-based gas and a SF-based gas.

Claim 16 (Original): The apparatus of claim 13, wherein the deposit removing gas is an oxygen gas and the dummy substrate etching gas is CF₄.

Claim 17 (Original): The apparatus of claim 13, wherein a surface of the dummy substrate is made of a material having silicon.

Claim 18 (Currently Amended): An apparatus for performing a plasma processing on an object to be processed, comprising:

a chamber in which a first and a second plasma process are performed on the object, wherein the second plasma process includes a plasma etching process carried out without generating deposits in the chamber; and

a gas supply system for supplying into the chamber a deposit removing gas for removing deposits produced during the first plasma process in the chamber and a dummy substrate etching gas capable of plasma-etching a dummy substrate during a dry cleaning process carried out by using the dummy substrate, the dry cleaning process being performed after the first plasma process and prior to the second plasma process to stabilize an etching rate of the second plasma process carried out right after the dry cleaning step,

wherein a ratio of flow rate of the dummy substrate etching gas to that of the deposit removing gas during the dry cleaning process is not less than about 0.14% and not larger than about 7.1%, and

wherein a first and a second CF-based gas are used in the first and the second plasma process, respectively, and a fluorine/chlorine (F/C) ratio of the first CF-based gas is smaller than that of the second CF-based gas.

Claim 19 (Previously Presented): The apparatus of claim 18, wherein a high frequency power applied to one of a top and a bottom electrode during the dry cleaning process ranges from about 3.18 W/cm² to about 4.78 W/cm².